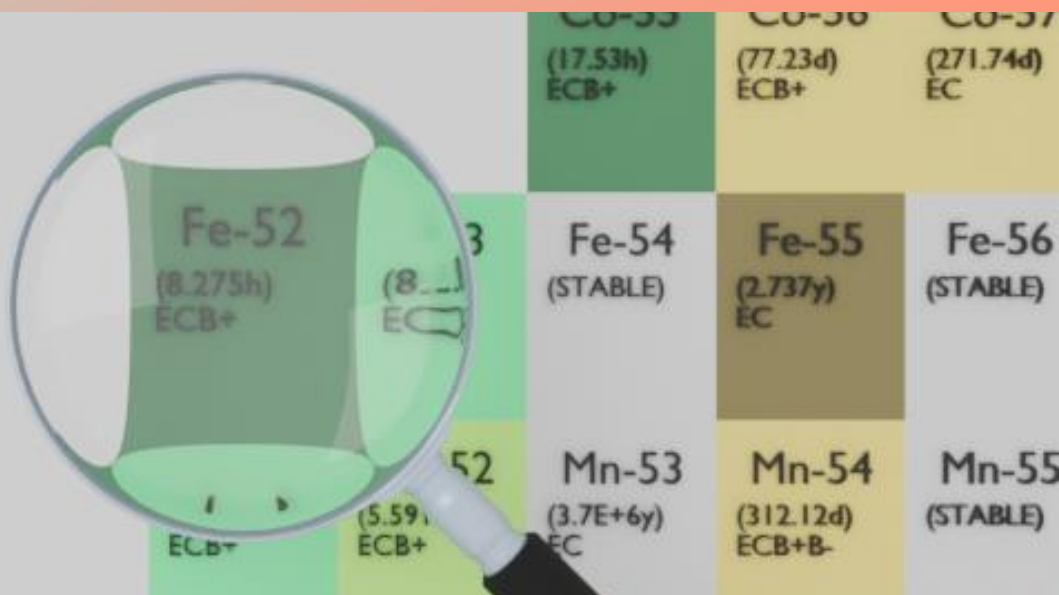




Co-55 (17.53h) ECB+	Co-56 (77.23d) ECB+	Co-57 (271.74d) EC
Fe-52 (8.275h) ECB+	Fe-54 (STABLE)	Fe-55 (2.737y) EC
Mn-53 (5.59) ECB+	Mn-54 (312.12d) ECB+B-	Mn-55 (STABLE)

IRON-52

SUMMARY DATA

GENERAL

CLASSIFICATION

Isotope: Fe-52
Atomic number (Z): 26
Mass number (A): 52
Neutron number (N): 26

RADIOACTIVE DECAY

Decay modes: β^+ , Electron capture
Half-life: 8.275 [h]
Decay constant: 2.3268×10^{-5} [1/s]
Daughters: Mn-52m (100.0%)
Radioactive daughters: Mn-52m

DOSIMETRIC CONSTANTS

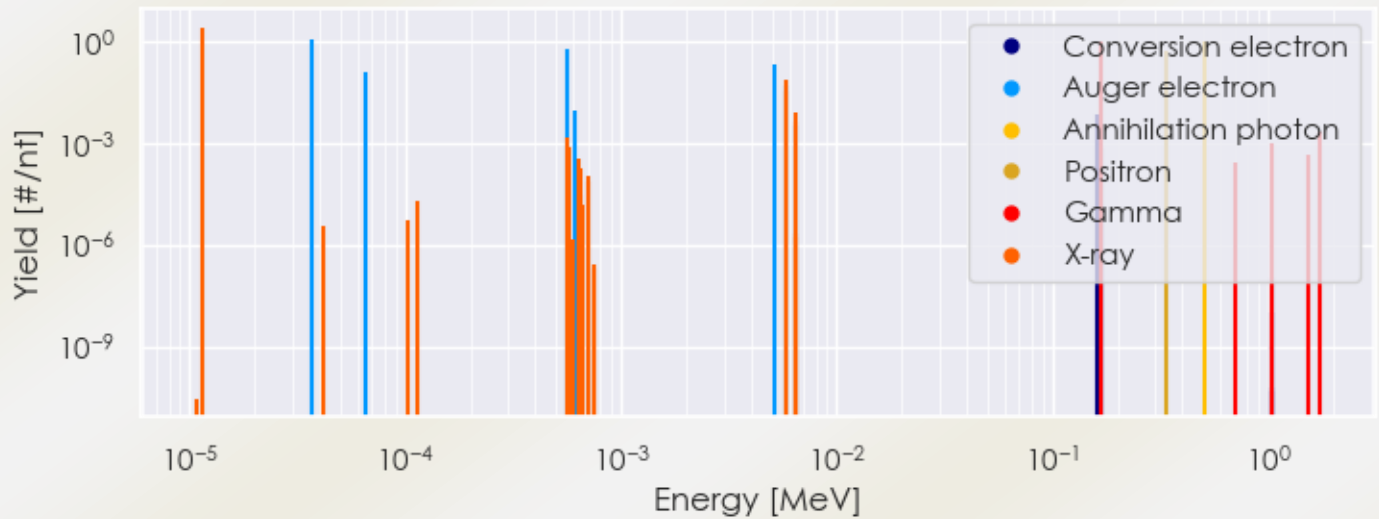
Mean alpha energy: 0.0 [MeV]
Mean electron energy: 0.19169 [MeV]
Mean photon energy: 0.74045 [MeV]
Air kerma rate constant, Γ_{10} : 5.654×10^{-18} [Gy $\cdot$ m²/Bq $\cdot$ s]
Air kerma coefficient, K_{air} : 2.713×10^{-17} [Gy $\cdot$ m²/Bq $\cdot$ s]
Equilibrium dose constant for weakly-penetrating radiations (α and/or electrons), Δ_{wp} : 3.071×10^{-14} [Gy $\cdot$ kg/Bq $\cdot$ s]
Equilibrium dose constant for alphas, Δ_{α} : 0.000e+00 [Gy $\cdot$ kg/Bq $\cdot$ s]

Equilibrium dose constant for betas/electrons, $\Delta_{\beta, \beta^+, e^-}$: 3.071×10^{-14} [Gy·kg/Bq·s]

Equilibrium dose constant for photons, Δ_p : 1.186×10^{-13} [Gy·kg/Bq·s]

SUMMARY SPECTRA (PLOT)

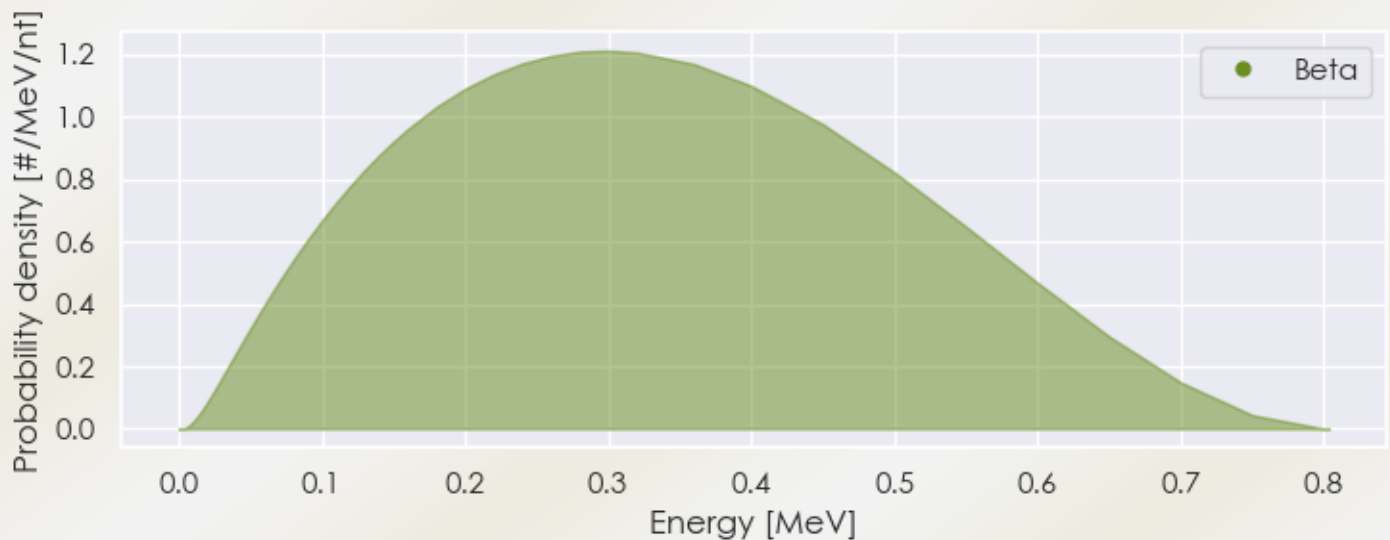
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Fe-52 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Fe-52%20Summary%20Spectrum.csv)

BETA SPECTRA (PLOT)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated beta spectra file here: [www.mirdsoft.org/products/MIRDspecs/Fe-52 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Fe-52%20Beta%20Spectrum.csv)

TABULATED DATA

SUMMARY SPECTRA (TABLE)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**

Note: Radiations with yield < 0.01 are excluded from the table, but are available in the linked *.csv data.

Download tabulated summary spectra file here: www.mirdsoft.org/products/MIRDspecs/Fe-52 Summary Spectrum.csv

Energy [MeV]	Yield [#/(nt)] if > 0.01	Radiation type
1.14856e-05	2.745e+00	X-ray
5.84793e-03	3.698e-02	X-ray
5.85866e-03	7.250e-02	X-ray
1.68688e-01	9.918e-01	Gamma
5.11000e-01	1.109e+00	Annihilation photon
3.39918e-01	5.547e-01	Positron
3.64613e-05	1.234e+00	Auger electron
6.48980e-05	1.277e-01	Auger electron
5.59354e-04	6.400e-01	Auger electron
5.15113e-03	2.231e-01	Auger electron
5.76225e-03	5.395e-02	Auger electron

USEFUL LINKS

Isotope decay characteristics are periodically updated as better measurements can be made - changes that may not be reflected on this page. Please see useful links:

National Nuclear Data Center (NNDC): <https://www.nndc.bnl.gov/nudat3/mird/>

International Atomic Energy Agency (IAEA) Livechart: <https://www-nds.iaea.org/relnsd/vcharthtml/VChartHTML.html>

REFERENCE LINKS

ICRP Report 107: <https://www.icrp.org/publication.asp?id=ICRP%20Publication%20107>

Graves et al. Dose Point Kernels: <https://doi.org/10.1002/mp.13789>

MIRD Decay Schemes 2nd Edition: https://sites.snmmi.org/SNMMI-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6